DOCUMENT RESUME

ED 400 155 RC 020 751

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TITLE Distance Education Delivery Networks: Role in Community and Institutional Development.
PUB DATE 92
NOTE 19p.; In: Distance Education and Sustainable Community Development; see RC 020 746.
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Change Agents; Community Centers; Community Development; *Community Education; *Distance Education; *Extension Education; Foreign Countries; Higher Education; *Information Networks; Institutional Cooperation; Linking Agents; Role of Education; Rural Education; Secondary Education; *Teleconferencing
IDENTIFIERS *Ontario (North)

ABSTRACT

Contact North is a provincially funded distance education network designed to increase access to educational opportunities for residents of northern Ontario, Canada. Educational needs of this region include basic education and skills, management education for Native communities assuming self-government, and skills and access to communication and information tools that promote community empowerment and self-development. At one level, Contact North operates as an electronically based delivery system for credit and noncredit programming from northern universities, colleges, and secondary schools. Each of 34 community access sites is equipped for teleconferencing and various other modes of delivery. Contact North stimulates and assists educational institutions to add distance education to their traditional delivery models through initiatives such as a fund that supports program development and collaborative projects; professional distance education consultants who act as liaisons with secondary schools, postsecondary institutions, and French and Native communities; development of feedback loops between institutional providers and communities; and support for research and information dissemination. At the community level, Contact North acts as a change agent to facilitate course delivery and nurture a learning culture by establishing community facilities to serve as access sites and learning centers, by training local site coordinators, by providing information and library services to students, by supporting development of interactive technologies, and by promoting distance programming. Appendix lists 12 research studies and conferences supported by Contact North. (SV)

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Distance Education Delivery Networks—Role in Community and Institutional Development

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Introduction

This case study examines the role of a distance education delivery network in both community and institutional development. The paper looks at processes and practices of a distance education delivery network—Contact North/Contact Nord. A successful distance education initiative must address the development needs of both the communities and institutions. Within the educational institutions there is a need to develop faculty and administrative commitment and support and effective systems that provide support for long term distance education delivery and development. Equally important is the development of a supportive climate within the communities. This support must extend from the local government, community organizations and local school establishments through to the individual learners who enrol in distance education programs.

Distance education challenges both institutions and communities to adapt to change in the philosophy, technology and practices of both learners and teachers. The paper discusses the role of a distance educational network in supporting and animating this change process.

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Distance Education and Development

The concept of development is often ambiguous and described by such terms as "growth, social change, advancement, progress and modernization which are heavily value-laden" (Daniel, 1990). Maslow (1954) has attempted to differentiate the various stages of need. For the purposes of this paper I will assume that development is sequential and is concerned with strategies for meeting human needs, beginning with the most basic needs for food and shelter and progressing to human needs associated with personal and community actualization.

Furtado (1977) describes three components of development which have particular relevance for the role of education in general and distance education in particular. First is the economic dimension which requires that development enhance the productive capacity of the society. Second is the ideological component which calls for distribution of the benefits of development to accrue to the population as a whole. Finally there is the political dimension which requires that various affected groups have an opportunity to participate in the decision making related to the decisions and thus "influence the use and distribution of scarce resources" (Daniel, 1990)

There seems little doubt that distance education has the potential to meet these three criteria for successful development. It is fairly easy for educational institutions to develop programming which meets the economic criteria. Developing programming that fulfils the political and ideological component of development is often very difficult. In order to even understand, much less be able to affect these political and ideological components requires a depth of understanding and familiarization with target populations which is usually lacking within the institutional structure. Thus the linkage between target populations in the communities and educational institutions is crucially important if distance education is going to contribute to community development.

The Nature of Distance Education

Distance educators have a propensity for arguing about the fundamental nature of distance education. Journals are full of learned discussions pertaining to the definition of distance education, classification schemes, models, systems and topologies, delivery medias and generations of development of distance education. This voluminous discourse is a consequence of the newness of this form of education, the tremendous growth

and adaption of distance education theory and practice in different cultures and geographies and of the impact of modern communications technologies.

It is beyond the scope of this paper to enter this fray (Garrison, 1989; Keegan, 1980) however it is important to understand the general model of education that underlies the perspective of the professional educators who currently develop and deliver distance education programming in order to appreciate the institutional perspective that guides distance educational development.

Rumble (1986) has expanded into the realm of distance education the work of Bertrand (1979) on general education models. Bertrand developed a framework which divides education models into three broad categories—institutional-centered models, society-centred models and person-centered models.

Institutional-centered models focus on increasing the effectiveness and penetration of formal education content and process by delivering education in a distance format. These models are concerned with credentialing, equivalency of academic standards between distance education and on campus programs, integration of faculty and administrative systems into a distance format and increasing access to formal educational opportunities. The delivery model employed by institution-centered models is usually based on information processing and transmission of knowledge from instructor to students. This model drives the vast majority of distance education programming currently available in Canada.

Society-centered models develop from a community base and generally adhere to a social-action or community development perspective. In Rumble's (1988) words the "purpose of the educator is to help the whole community to identify what is to be learnt, to find the resources for learning, and to evaluate what has been learnt". The society-centred model is dependant on groups of learners sharing their knowledge, perspectives and problems and then using all available resources (including formal educational institutions) to solve these problems. Thus the delivery model is predicated on the use of face to face community gatherings or more recently the use of 2 way telecommunications technologies that support group process and problem solving. Society-based models reflect the learning needs and pre-dispositions to learning that have been identified within the literature on adult education. Pioneering work in this type of education model was undertaken in Canada in the 1920's and 1930's by the Canadian Antigonish Movement and in the 1940's by the radio based Canadian Farm Forums. More recent examples of this model of distance education are found in many developing countries especially in Latin America.

Person-centered models of distance education focus on individual students undertaking a formal course of study. These are differentiated from independent research or study in that a formal education institution is involved and learning is usually negotiated under a contract between a faculty member and an individual student. This model is derived from the European model of higher education and is dependent on individual students having clear conceptions of their educational goals and objectives and having the skills and aptitudes to define and persist within their learning agenda. In addition the model depends on educational institutions that are prepared to provide this type of individualized delivery. There are very few examples of this type of person-centered distance education in Canada today.

The use of distance education as a development tool within the Canadian environment is dependent upon transcending the gap between the formal educational institutions which, with very few exceptions follow an institution-centered education model and community leaders and groups that generally subscribe to a community-centered model. To accomplish this goal considerable change must take place both within institutions and within local communities.

Distance Educational Delivery Networks

From an institutional perspective, the human, capital and operational resources required to provide quality, distance education delivery and support services in many communities spread over large distance is often beyond the capacity of any single education deliverer. As a response to these high costs, a number of multi purpose delivery networks have been established in Canada (Alberta Teleconferencing Network, Contact North—Ontario, Open Learning Agency—British Columbia, Saskatchewan Communications and Access Network)

The functions and services of these delivery networks vary in scope, mandate and capacity. Some have mandates that include the development of course material and granting of degrees on their behalf others are limited to the delivery and distribution of courseware from other accredited educational institutions. Generally, these delivery networks provide information services to enroled and prospective learners, learning centres for interactive distance delivery of courses, technical troubleshooting and instruction in use of delivery technologies and informal, first line student support and referral services.

Contact North/Contact Nord Case Study

Contact North is a provincially funded distance education initiative that is designed to increase access to educational opportunities for residents of Northern Ontario. The project works as a change agent at both the community and institutional level as well as a direct service provider to learners and institutions.

Environment

The demographics of Northern Ontario are similar to those found in many rural regions in Northern Canada and throughout the Northern hemisphere. The region is economically very dependent on resource extraction industries—notably forestry and mining. Population density is very low, (approximately 800,000 people are spread over an area of 780,000 sq. kms) with many small towns separated by large tracks of bush.

The region suffers from high unemployment rates while automation and demand for technological skills creates shortages of skilled workers in the major resource based industries. Education levels are generally lower then the national averages (Nelson and Minore 1988). Thus there is a demand for basic education and skills training. Native communities are assuming responsibilities for self government and are seeking access to educational programming that will provide locally the skilled employees to manage this development. Finally there is a growing need for development of the necessary skills and access to communication and information tools which empower a community to assert its own development perspective in the technologically oriented Canadian economy.

Contact North as Delivery Vehicle

At one level Contact North operates as an electronically based delivery system for both credit and non credit programming originating from Northern Universities, Colleges and secondary schools. To accommodate the widest variety of delivery modes currently in use by distance education delivery institutions in Ontario, Contact North has configured its network with a heterogeneous collection of educational delivery technologies. A 60 port digital teleconferencing bridge as well as the CoSy computer conferencing system was purchased for each of the two regional coordinating centres (one in Sudbury and the other in Thunder Bay). Each of the 34 community access sites is equipped with a teleconferencing convener, a facsimile machine, a

video tape playback system and television, an IBM AT and a Unisys ICON microcomputer as well as an audio cassette recorder and telephone answering system. Telewriter II audiographic devices are also used at each site to enhance the teleconferencing capacity on the network.

The most common mode of delivery currently being used on the Contact North network is print and audio or video tape packages supplemented by audio teleconferencing. The facsimile machines are being used for rapid turn around of student assignments and tests.

To date the major users of the Contact North network have been northern colleges, universities and secondary schools delivering credit programming. During the 1989-90 academic year 375 teleconference supported courses were delivered to 4693 registered students. The network is also used by non- profit community organizations (Boy Scouts, Literacy Groups, Day Care Advocacy Groups etc.) and professional groups (Law Society of Upper Canada, Canadian Association for Distance Education) for meetings and training activities.

Contact North as an Agent of Institutional Change

The development of distance education development and delivery capacity within a formal education institution is not an easy task. Distance education challenges the role of teachers, physical facilities (notably libraries, bookstores), admission policies and practices, examination and assessment practices, and student services.

The Contact North program has developed a number of initiatives designed to stimulate and assist educational institutions in adding distance education delivery capacity to their traditional on campus and continuing education delivery models. The major focus of these initiatives are:

Northern Distance Eduction Fund

A key ingredient insuring post secondary participation in the project was the allocation of over $8 million of Contact North project funds to a Northern Distance Education Fund (NDEF). The fund is used to develop or purchase distance education programming. The conditions of application to the fund include the following:

1. priority given to projects undertaken in a collaborative manner

2. full programs, not courses to be developed

3. content and delivery methodology to clearly meet northern needs

4. development of new programs not currently available in Ontario

5. encourage quality development by the use of course team approach

The "forced marriages" dictated by the first condition of the NDEF resulted in the first collaborative course development teaching programs ever attempted by many of the institutions. The development process, like most marriages had their share of problems, but to date—no divorces!

The Employment of Professional Distance Education Consultants

A total of 7 full time positions have been created to assist institutions in effectively developing and delivering distance education programming. Four secondary school liaison officers are responsible for developing a major distance education initiative within the approximentaly 100 secondary schools in Northern Ontario. These liaison officers work with teachers, principals and Ministry of Education personnel and are engaged in training activities, consultation with course development teams, and administrative support for "cooperatives" of small school boards who are sharing distance education development and delivery resources.

A Training and Instructional Design Officer works with a variety of post secondary institutions offering training programs (both face to face and at a distance) and individual consultations with faculty members new to distance education and with established curriculum development teams.

Finally Contact North employ a Community and Native Liaison and a French Language programming Officer. These individuals work with these two special target populations and assist both community groups and delivery institutions in the development and delivery of programming aimed at these target populations. (Roberts, Burge and White, 1990)

These professional staff offer a unique perspective to staff and faculty of the educational institutions. They are able to offer advise and assistance, without becoming involved in the political and bureaucratic intrigues that flourish in many complex educational institutions. In the communities these workers are

viewed as proponents of educational change and increased access to educational opportunities, without being identified with any vested interests from a particular educational institution.

Role in Developing Feedback Loops

Contact North staff working within the local communities as well as those with regional job responsibilities are constantly meeting with individuals and organizations with diverse educational needs. Many of these needs could be met through distance education. Contact North interactions with course developers and delivers at all levels of formal education allow these needs and requests to be focused on the institution most likely to have or be capable of producing the necessary programming. The fact that Contact North does not develop or deliver programming on its own behalf, but serves as a delivery vehicle for other institutions, puts the organization in a unique non competitive relationship with the individual institutions.

Support for Research and Information Dissemination

Recognizing the need for formal research in the evolving field of distance education, Contact North has sponsored a number of research papers and conferences. These studies were designed to address formative evaluation of Contact North itself as well as more general questions relating to community and institutional access to distance education services. One example of these research projects is the funding of a multi year study by Drs. Nelson and Minore to assess the project's impact on the communities. (Nelson and Minore, 1989)

Despite these studies, there is a great deal of activity within the project that is not being systematically evaluated and thus its impact and effectiveness is reduced. In particular it has proven difficult to inspire educational researchers within the northern universities to participate actively in the thriving educational laboratory that Contact North has created.

Contact North/Contact Nord as Change Agent in the Communities

Contact North works at the community level both to facilitate actual course delivery and to develop and nurture the growth of a learning culture. The major activities of the program in local communities are summarized below:

Establishment and Support of Community Access Sites

The Contact North access sites in small northern communities serve as study and learning centres for distance education learners. Tomlinson (1984) describes the necessity of establishing physical facilities to support distance learners. According to Tomlinson the functions of these study centres are threefold.

1. a meeting place for students and tutors

2. a place to share the use of equipment

3. a place to access library materials

The Contact North sites do provide meeting facilities and the "warm coffeepot" for students, however due to the very large distances involved, most of the interactions between students and tutors take place via audioteleconference. Equipment such as the micro computers and the video machines are used extensively by students. Some institutions provide study centres kits with reference books, tapes, etc., that act as specialized learning libraries.

A major issue facing Contact North is the availability of suitable space as programming and student numbers increase. The policy that rent free accommodations be provided as a community contribution to the project has strained the capacity of some communities where adequate and secure facilities are in very short supply.

Contact North operates full access sites in 34 communities spread across Northern Ontario. An unplanned consequence of the animation roles of professional staff working in the Native and Francophone communities, was the demand for delivery services in over 70 additional small communities that were not targeted nor funded for development as "access sites".

Although the first objective of the Contact North program is to provide access to educational opportunities to residents in remote communities, the number of potential students in any single community is related to the size of that community. The Contact North model is currently based upon extensive use of a local learning centre, access to audioconferencing equipment and the active presence of trained distance education learning facilitators (site coordinators). Thus the development of additional full access sites is dependent on availability of both capital and operational funds. The demand for additional access led to innovations in equipment procurement (purchases

by community organizations, schools and other government agencies besides Contact North) and in student support (use of volunteers, schools and community workers as well as short term funding for part time staff by Contact North).

One example of this type of innovation was a one year pilot project in six remote communities. These six communities were provided with a facsimile machine and an audio teleconferencing convener. A community contact was identified in each community and a two-day inservice and training session as well as a series of audio teleconferences were held with these community contacts. A system of remuneration for the community contacts based on amount of teleconference supported delivery was developed. Finally a staff member from Contact North was assigned to provide support and information services to these communities.

The results of this experiment were extremely variable. This variation was related to:

- Quantity and quality of the programming from delivery institutions targeted at the communities (Institutional commitment), and

- Degree of local support and awareness of the opportunities provided by distance education. (Community commitment).

When comparing these "collaborative sites" to fully equipped and staffed access site communities it was apparent that successful implementation was highly dependent on support (both financial and moral) from Contact North as well as from local community organizations, regular information flow between and amongst communities, Contact North and the delivery institutions and a commitment on behalf of at least one major educational deliverer to offer relevant programming within the community.

Finally Contact North has continued to support delivery of students in very small communities spread across Ontario who wish to participate in distance education programming but who do not have access to a learning centre. Generally these students dial into teleconference courses from their homes.

Support and Training of Local Site Coordinators

Experience within the Contact North project has shown the critical role of community based distance education facilitators referred to as "site coordinators". Hickling (1989) concluded that "the site coordinators are an

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innovative and important element of the application of technology to improve the accessibility of Northerners to educational opportunities." Student surveys by Hickling (1989) determined that over 89% of students using the Contact North program obtained assistance from the site coordinators. This assistance included help with technologies (60%), motivational support (40%) and help with course work (34%).

The role, training and support of these community based support workers is multi facetted (see Anderson (1989) for a more in depth discussion). In brief, front line educational workers such as the site coordinators are confronted with a variety of student issues and problems ranging from lost text books to deep personal and community problems. The site coordinators are trained to be good listeners and to know the resources of their local communities and educational institutions that can be focused on these problems. Obviously they do not provide in depth student counselling nor can they speak for the institutions that use the delivery network, yet they can, and do provide the necessary encouragement and support to help students to help themselves.

The degree to which part time Contact North site coordinators should become involved in vocational, academic or personal counselling has been an issue during the project. In particular academic counselling is a very sensitive issue since only the registrar of a particular institution can speak with authority for that institution. However that registrar is often a thousand kilometres or more away from the distance education student in the community. Site Coordinators have also been tempted to become over involved with the wealth of educational, economic and community development problems that exist in Northern Canada. Contact North has not been given the mandate nor funding to use distance education as a direct vehicle for community change and empowerment, yet it is difficult if not impossible to separate educational from political and economic aspirations and expectations.

Computer conferencing is used as the primary communication vehicle between Contact North staff both in the communities and at the Regional Coordinating Centres. The unique capacity of this communication media to provide administrative and collaborative support to team workers separated by large distance has proved invaluable within the project. (Anderson and Sweet, 1990)

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Provision of Information Services

Calendars and promotional materials from over 60 educational institutions from across Canada are displayed in the small reference libraries maintained at the access sites. The number of educational institutions delivering distance education programming in Canada is large and increasing each year.

Delivery institutions are encouraged to provide sample packages of study materials for student perusal. The CoSy computer conferencing system is used as a data base and query service by which part time staff and students can make inquires of other staff and institutional employees relating to available programming.

Access to libraries by distance education students in Northern Ontario is problematic (Burge et al., 1988). Access to online catalogues as well as recent implementation of 24 hour toll free telephone inquiry services at a number of institutions is assisting Northern learners to access library services.

Profession of Interactive Technologies

Boyd (1989) has noted that "cost effective distance education minimizes the use of administratively expensive local study centres and personal tutor telecommunications, in order to save money even at the expense of effectiveness." By providing study centres and audioteleconferencing services to delivery institutions at no cost Contact North supports the development of more personalized programming and increases the quantity and quality of the "dialogue" component of a course. Kaufman (1989) reviews the literature documenting the importance of dialogue as an essential enhancement to distance education based on course packages and concludes that "an extremely flexible communication system must be provided to permit dialogue among learners and teachers." Besides the audiographic enhanced teleconferencing, Contact North provides computer conferencing and facsimile services to learners and delivery institutions.

The costs of these interactive technologies are however becoming a major concern within the project. Generally all forms of interactive distance education are more expensive then non interactive medias such as print based courses. The challenge for distance delivery networks like Contact North is to insure that the technologies are employed as cost effectively as possible and to exploit opportunities as delivery medias and channels develop and evolve.

Support of Distance Learning Culture

Hughes (1989) has documented the importance of a "student learning culture" and contends that "value systems, behavioral norms and customs cannot be effectively conveyed merely through course materials." She goes on to argue that:

> "off-campus students need to establish an identity within a university culture which they can in part achieve through group interaction. In the process . . . they create their own version of the university culture which may or may not approximate either the academic culture or the on-campus undergraduate culture. Central to this process is the role of the intermediary, a leader who acts as a broker between the university and the students and controls the version of received reality".

While the degree to which Contact North staff "control" the received reality of learners is questionable, Contact North staff, in the local communities, assist learners in maximizing their interest and input into their educational experiences. Examples of this type of "student animation" would include initial support for the chartering of the Distance Education Students of Canada (DESC) as well as support for an electronic student's newspaper focusing on issues relevant to distance learners.

Promotion of Distance Education Programming

Despite the availability of thousands of distance education programs, it has been our experience that local community residents are generally not familiar with the opportunities which distance education makes available. Contact North has attempted to promote distance education learning through a variety of promotion strategies including posters, selling of sweatshirts, distribution of promotional placemats in local restaurants, local newspaper and radio ads, publishing of a free promotional "fax directory", regular distribution of nearly 2000 copies of our newsletter, publishing of an annual report and regular listings of programming delivered via our audio teleconferencing network. In addition Contact North staff make many presentations to community groups, educators and professional and industry associations.

Conclusions

This paper has attempted to outline the function and service of a particular distance education delivery network—Contact North. Contact North is a catalyst that works to integrate and optimise the potential of distance education as a development vehicle and strategy. In order to optimize the effectiveness of its development potential, especially the political and ideological components of development, increased communication, collaboration and understanding between institutions and communities is essential. By providing human and material resources to support this integration Contact North serves to enhance the utility of distance education as a development tool.

Distance education is in many ways a subversive activity—it subverts the monopoly of regional institutional mandates, centralized decision making and planning and exclusive institutional control of learning. At the same time it subverts the traditional excuse of learners in small communities that they do not have opportunity to pursue or influence educational programming.

The development of delivery networks such as Contact North, with a mandate to both support and challenge institutions and communities as well as to offer a broad range of support and delivery services is an important tool in the struggle to enhance development opportunities in Canada's northern communities. Effective life long learning opportunities, accessible to learners without constraints of time and distance is a prerequisite to active participation in post industrial society. Distance education is the only mechanism available to achieve this goal in the north. Distance Education delivery networks such as Contact North not only provide the physical carrier to deliver programming, but also facilitate the changes in both institutions and communities that are necessary to ensure the realisation of distance education's development potential.

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